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INVENTOR-INFORMATION:

NAME	COUNTRY
FUJISAWA, KAZUTOSHI	N/A

ASSIGNEE-INFORMATION:

NAME	COUNTRY
SEIKO EPSON CORP	N/A

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ABSTRACT:

PROBLEM TO BE SOLVED: To provide a fixing device constituted so that a recording medium hardly gets wet, as for the fixing device used for an image forming apparatus.

SOLUTION: The fixing device is provided with a rotary-driven fixing member 61, a pressure member 62 which is rotated in press contact with the fixing member 61, a peeling member 80 arranged in at least one of the fixing member and the pressure member so as to peel and guide a sheet-like recording medium coming after passing through a nip part N between the fixing member and the pressure member, and the peeling member 80 is arranged above the exit of the nip part or on the downstream side of the air current flowing from the exit of the nip part, and a heat receiving plate 85 for receiving the heat from the pressure member 62 is arranged on the peeling member 80. The heat receiving plate 85 is provided with a heat receiving part 85a arranged on the downstream side in the rotating direction of the pressure member 62 away from the leading end of the peeling member 80 and placed opposite to the pressure member 62, and a heat transmission part 85b which is integrally joined to the peeling member 80 so as to transmit the heat to the peeling member 80.

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(71) 出願人 000002369

セイコーエプソン株式会社

東京都新宿区西新宿2丁目4番1号

(74) 代理人 100093115

弁理士 佐渡 昇

(72) 発明者 藤沢 和利

長野県諏訪市大和3丁目3番5号 セイコ

ーエプソン株式会社内

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(54) 【発明の名称】 定着装置

(57) 【要約】

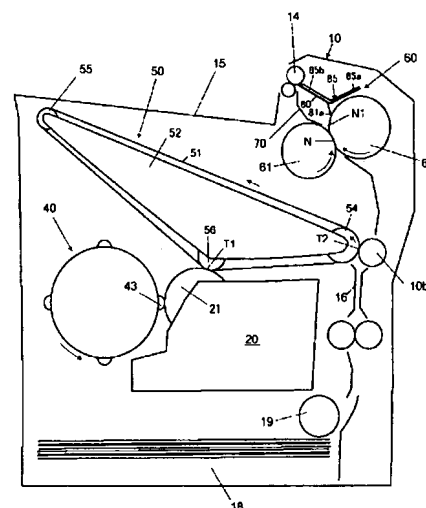
【課題】 記録媒体が濡れにくい定着装置を提供する。

【解決手段】 回転駆動される定着部材61と、定着部材61に圧接されて回転する加圧部材62と、定着部材、加圧部材のうちの少なくとも一方の部材に対して設けられ、定着部材と加圧部材との圧接部Nを通過してきたシート状の記録媒体を剥離しかつ案内する剥離部材80とを有し、剥離部材80が圧接部の出口の上方または圧接部の出口からの気流の下流側に設けられており、剥離部材80に、加圧部材62からの熱を受ける受熱板85が設けられている。受熱板85は、剥離部材80の先端よりも加圧部材62の回転方向下流側にあって加圧部材62と対向している受熱部85aと、剥離部材80に一体的に接合されて剥離部材80に熱を伝える伝熱部85bとを有している。

【選択図】

図1

96003-01



【特許請求の範囲】

【請求項 1】

回転駆動される定着部材と、この定着部材に圧接されて回転する加圧部材と、これら定着部材、加圧部材のうちの少なくとも一方の部材に対して設けられ、定着部材と加圧部材との圧接部を通過してきたシート状の記録媒体を前記少なくとも一方の部材の表面から剥離しかつ案内する剥離部材とを有し、この剥離部材が前記圧接部の出口の上方または圧接部の出口からの気流の下流側に設けられている装置であって、前記剥離部材に、前記少なくとも一方の部材からの熱を受ける受熱板が設けられていることを特徴とする定着装置。

【請求項 2】

前記受熱板は、前記剥離部材の先端よりも前記少なくとも一方の部材の回転方向下流側にあって当該一方の部材と対向している受熱部と、前記剥離部材に一体的に接合されて剥離部材に熱を伝える伝熱部とを有していることを特徴とする請求項 1 記載の定着装置。

【請求項 3】

前記剥離部材には穴が設けられているとともに、前記受熱板の伝熱部には、前記剥離部材の穴から突出しているリブが設けられていることを特徴とする請求項 2 記載の定着装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】

本発明は、電子写真技術を用いて画像を形成するプリンター、ファクシミリ、複写機等の画像形成装置に用いられる定着装置に関する。特に、その剥離部材の改良技術に関するものである。

【0002】

【従来技術】

一般に、電子写真技術を用いた画像形成装置は、外周面に感光層を有する感光体と、この感光体の外周面を一樣に帯電させる帯電手段と、この帯電手段により一樣に帯電させられた外周面を選択的に露光して静電潜像を形成する露光手段と、この露光手段により形成された静電潜像に現像剤であるトナーを付与して可視像（トナー像）とする現像手段と、この現像手段により現像されたトナー像を転写対象である用紙等のシート状記録媒体に転写させる転写手段と、この転写手段によりトナー像が転写された記録媒体上にそのトナー像を定着させる定着装置とを有している。

定着装置は、回転駆動される定着部材（例えば熱源を有する定着ローラや定着ベルト）と、この定着部材に圧接されて回転する加圧部材（例えば加圧ローラ）とを有しており、これら定着部材と加圧部材との圧接部に記録媒体を通しながら加熱することでトナーを記録媒体上に溶融定着させるようになっている。

また、トナー像が形成された記録媒体の面は、トナーによる接着作用で定着部材（記録媒体の両面に画像を形成する場合には加圧部材にも）に貼り付きやすいことから、定着部材、加圧部材のうちの少なくとも定着部材に対して、前記圧接部を通過してきたシート状の記録媒体をその表面から剥離させかつ案内する剥離部材を備えている。

【0003】

従来技術の定着装置としては、回転駆動される定着ローラ 1 と、この定着ローラ 1 に圧接されて回転する加圧ローラ 6 と、定着ローラ 1 に対して設けられ、定着ローラと加圧ローラ 6 との圧接部 N を通過してきたシート状の記録媒体 P を定着ローラ 1 の表面から剥離しかつ案内する剥離シート 7 と、この剥離シート 7 を支持している支持プレート 12 とを有しているものが知られている（例えば、特許文献 1 参照）。

なお、剥離シート 7 は、耐熱性樹脂または金属からなる基材 8 とその表面に設けられたフッ素樹脂層 9 とで構成されており、支持プレート 12 は金属で構成されている（例えば、特許文献 1 参照）。

【0004】

【特許文献 1】

特開平 11-184300 号公報 (第 0018、0022~0024 段落、図 1~2)

【0005】

【発明が解決しようとする課題】

以上のような定着装置においては、定着部材と加圧部材との圧接部で記録媒体を加熱しながら搬送するから、記録媒体が紙等の水分を含む媒体である場合には、前記圧接部の出口から記録媒体の水分が蒸気として放出される。

この蒸気は上方に向かい、あるいは、定着装置に対して送風手段（あるいは吸気手段）が設けられている場合には、その送風手段による気流の下流側に向かう。

このため、剥離部材が前記圧接部の出口の上方または圧接部の出口からの気流の下流側に設けられており、かつ、この剥離部材が低温であると（例えば定着装置の稼働初期においては剥離部材は低温であり、その後、定着部材等からの熱を受けて徐々に高温となる）、剥離部材における表面（記録媒体の案内面）に結露が生じる。

剥離部材の表面に結露した水分は、記録媒体を濡らし、記録媒体に濡れジミを作ったり、濡れによる記録媒体の歪みを生じさせたりする。

更に、記録媒体の表面に画像を形成した後、裏面にも画像を形成する両面印字を行う場合には、表面に画像を形成して定着させた際に記録媒体の裏面側が濡れ、この濡れた裏面側に画像を形成しようとする際に、記録媒体の濡れにより記録媒体の電気特性が変化し、トナー像が転写できなかつたり、濡れた水分でトナーの溶融が妨げられ十分な定着が出来なかつたりして、著しい画像欠陥が生じることがある。

【0006】

この発明の目的は、以上のような問題を解決し、記録媒体が濡れにくい定着装置を提供することにある。

【0007】

【課題を解決するための手段】

上記目的を達成するために本願発明の定着装置は、回転駆動される定着部材と、この定着部材に圧接されて回転する加圧部材と、これら定着部材、加圧部材のうちの少なくとも一方の部材に対して設けられ、定着部材と加圧部材との圧接部を通過してきたシート状の記録媒体を前記少なくとも一方の部材の表面から剥離しかつ案内する剥離部材とを有し、この剥離部材が前記圧接部の出口の上方または圧接部の出口からの気流の下流側に設けられている装置であって、

前記剥離部材に、前記少なくとも一方の部材からの熱を受ける受熱板が設けられていることを特徴とする。

望ましくは、前記受熱板は、前記剥離部材の先端よりも前記少なくとも一方の部材の回転方向下流側にあつて当該一方の部材と対向している受熱部と、前記剥離部材に一体的に接合されて剥離部材に熱を伝える伝熱部とで構成する。

さらに望ましくは、前記剥離部材には穴を設けるとともに、前記受熱板の伝熱部には、前記剥離部材の穴から突出しているリブを設ける。

【0008】

【作用効果】

本願発明の定着装置は、回転駆動される定着部材と、この定着部材に圧接されて回転する加圧部材と、これら定着部材、加圧部材のうちの少なくとも一方の部材に対して設けられ、定着部材と加圧部材との圧接部を通過してきたシート状の記録媒体を前記少なくとも一方の部材の表面から剥離しかつ案内する剥離部材とを有し、この剥離部材が前記圧接部の出口の上方または圧接部の出口からの気流の下流側に設けられている装置であつて、前記剥離部材に、前記少なくとも一方の部材からの熱を受ける受熱板が設けられているので、この定着装置によれば次のような作用効果が得られる。

すなわち、剥離部材には前記少なくとも一方の部材からの熱を受ける受熱板が設けられているので、この受熱板の作用（受熱板が前記少なくとも一方の部材からの熱を受けてその熱を剥離部材に伝達する作用）によって、剥離部材は速やかに昇温することとなる。通常、定着装置が組み込まれている画像形成装置においては、定着装置への記録媒体の供給に

先立ち、定着装置の定着部材および加圧部材を所定の温度（トナーを記録媒体に定着させるのに必要な温度）に昇温させるウォームアップ動作がなされるが、この発明の定着装置によれば、剥離部材には前記少なくとも一方の部材からの熱を受ける受熱板が設けられているので、この受熱板の作用によって、上記ウォームアップ動作中に、剥離部材を、これに結露が生じない程度に昇温させることが可能となる。

したがって、この発明の定着装置によれば、剥離部材の表面が結露しにくくなり、結果として、記録媒体が濡れにくくなって、記録媒体に濡れジミや歪みが生じたり、両面印字時における著しい画像欠陥が生じにくくなる。

また、前記受熱板を、前記剥離部材の先端よりも前記少なくとも一方の部材の回転方向下流側にあつて当該一方の部材と対向している受熱部と、前記剥離部材に一体的に接合されて剥離部材に熱を伝える伝熱部とで構成することにより、受熱板の上記受熱部による受熱効率および上記伝熱部による剥離部材への伝熱効率が向上し、剥離部材が、より速やかに昇温することとなる。結果として、剥離部材の表面が一層結露しにくくなり、記録媒体が一層濡れにくくなって、記録媒体に濡れジミや歪みが生じたり、両面印字時における著しい画像欠陥が生じるという不具合が一層生じにくくなる。

さらに、前記剥離部材に穴を設け、前記受熱板の伝熱部に、前記剥離部材の穴から突出しているリブを設けることによって、剥離部材への記録媒体の接触面積を低減させることができると同時に、記録媒体に接触しやすい部位であるリブの温度をより速やかに上昇させることが可能となる。

したがって、仮に剥離部材に多少の結露があつたとしてもこれに記録媒体が接触しにくくなると同時に、記録媒体に接触しやすい部位であるリブには結露が生じにくくなる。結果として、記録媒体がより一層濡れにくくなって、記録媒体に濡れジミや歪みが生じたり、両面印字時における著しい画像欠陥が生じるという不具合がより一層生じにくくなる。

しかも、リブを剥離部材に直接形成するのではなく、受熱板に形成してあるので、剥離部材の精度を確保することができる。剥離部材にリブを直接加工（例えばプレス加工）すると、その影響で、剥離部材の精度が低下し、剥離性能が低下するおそれがあるが、この発明によれば剥離部材には穴を形成するだけでよいのでそのようなおそれは生じない。

【0009】

【発明の実施の形態】

以下、本発明の実施の形態について図面を参照して説明する。

図1は本発明に係る定着装置の一実施の形態を用いた画像形成装置の一例の内部構造を示す概略側面図である。

この画像形成装置は、A3サイズ of 用紙（記録媒体の一例）の両面にフルカラー画像を形成することのできるカラー画像形成装置であり、ケース10と、このケース10内に収容された、像担持体および露光ユニット20と、現像手段としての現像器40と、中間転写体ユニット50と、定着装置である定着ユニット60とを備えている。

ケース10には装置本体の図示しないフレームが設けられており、このフレームに各ユニット等が取り付けられている。

【0010】

像担持体および露光ユニット20は、外周面に感光層を有する感光体（像担持体）21と、この感光体21の外周面を一樣に帯電させる図示しない帯電手段とを有しており、この帯電手段により一樣に帯電させられた感光体21の外周面を露光ユニットからのレーザー光で選択的に露光して静電潜像を形成し、この静電潜像に現像器40で現像剤であるトナーを付与して可視像（トナー像）とし、このトナー像を中間転写体ユニット50の中間転写ベルト51に一次転写部T1で一次転写し、さらに、二次転写部T2で、転写対象である用紙等の記録媒体に二次転写させるようになっている。

【0011】

ケース10内には、上記二次転写部T2により片面に画像が形成された記録媒体をケース10上面の用紙排出部（排紙トレイ部）15に向けて搬送する搬送路と、この搬送路により用紙排出部15に向けて搬送された用紙をスイッチバックさせて他面にも画像を形成す

べく前記二次転写部 T 2 に向けて返送する図示しない返送路とが設けられている。
ケース 10 の下部には、複数枚の用紙を積層保持する給紙トレイ 18 と、その用紙を一枚ずつ上記二次転写部 T 2 に向けて給送する給紙ローラ 19 とが設けられている。

【0012】

現像器 40 はロータリ現像器であり、矢印方向に 90 度ピッチで回転することによって、感光体 21 に各色別の現像ローラ 43 を選択的に当接させ、感光体 21 の表面を選択的に現像することが可能となっている。

【0013】

中間転写体ユニット 50 は、ユニットフレーム 52 と、このフレーム 52 で回転可能に支持された駆動ローラ 54、従動ローラ 55、一次転写ローラ 56、および、これらローラに掛け回されて張架された前記中間転写ベルト 51 とを備えており、ベルト 51 が図示矢印方向に循環駆動される。感光体 21 と一次転写ローラ 56 との間において前記一次転写部 T 1 が形成されており、駆動ローラ 54 と本体側に設けられた二次転写ローラ 10b との圧接部において前記二次転写部 T 2 が形成される。

二次転写ローラ 10b は、前記駆動ローラ 54 に対して（したがって中間転写ベルト 51 に対して）接離可能であり、接触した際に二次転写部 T 2 が形成される。

したがって、カラー画像を形成する際には、二次転写ローラ 10b が中間転写ベルト 51 から離間している状態で中間転写ベルト 51 上において複数色のトナー像が重ね合わされてカラー画像が形成され、その後、二次転写ローラ 10b が中間転写ベルト 51 に当接し、その当接部（二次転写部 T 2）に記録媒体が供給されることによって記録媒体上にカラー画像（トナー像）が転写されることとなる。

トナー像が転写された記録媒体は、定着ユニット（定着装置）60 を通ることでトナー像が溶融定着され、排紙ローラ対 14 で搬送されて上記排紙トレイ部 15 に向けて排出される。

【0014】

この実施の形態の定着装置 60 は、図示しない駆動機構により回転駆動される定着部材としての定着ローラ 61 と、この定着ローラ 61 に圧接されて回転する加圧部材としての加圧ローラ 62 と、これら定着ローラ 61、加圧ローラ 62 に対して設けられ、定着ローラ 61 と加圧ローラ 62 との圧接部 N を通過してきたシート状の記録媒体（図示せず）を定着ローラ 61 または加圧ローラ 62 の表面から剥離しかつ案内する剥離部材としての定着ローラ用剥離部材 70 と、加圧ローラ用剥離部材 80 とを有している。

この実施の形態では、上述したように記録媒体の両面にトナー画像を形成するようになっているため、加圧ローラ 62 に対しても剥離部材（80）が設けられているが、記録媒体の片面にのみトナー像を形成する場合には、熱源が設けられている側の部材にのみ剥離部材（後述する構成の剥離部材）を設ける。

【0015】

図 1 から明らかなように、加圧ローラ用剥離部材 80 は、定着ローラ 61 と加圧ローラ 62 との圧接部 N の出口 N1 の上方に設けられている。

例えばこのように、剥離部材 80 が前記圧接部 N の出口 N1 の上方に設けられている場合において、仮に何らの方策も講じないとしたならば、前述したように、剥離部材 80 の表面（記録媒体の案内面）81（図 2 参照）には結露が生じ、前述したとおりの問題が発生する。なお、このような問題は、前述したように、剥離部材 80 が圧接部 N の出口 N1 の上方に設けられていなくても、圧接部 N の出口からの気流の下流側に設けられている場合に生じる。

【0016】

そこでこの実施の形態では、図 1 および図 2 に示すように、剥離部材 80 に、加圧ローラ 62 からの熱を受ける受熱板 85 を設けてある。

図 2 は主として加圧ローラ用剥離部材 80 を示す図で、（a）は平面図、（b）は正面図、（c）は図（b）における c-c 拡大断面図、（d）は図（b）における d-d 拡大断面図である。

加圧ローラ用剥離部材（剥離部材）８０は、一枚の金属板を折り曲げ加工することにより構成されており、記録媒体の案内面８１には、トナーに対する剥離性に優れたフッ素樹脂等をコーティングしてある。図２（ｂ）（ｄ）に示すように、剥離部材８０には穴８２を設けてある。この穴８２は上記金属板を、上記案内面側から裏面側に向けて打ち抜き加工することで形成されており、この打ち抜き加工を行った後に上記フッ素樹脂等をコーティングしてある。上記案内面側から裏面側に向けて打ち抜き加工することにより、案内面側がプレスだれ側となる（打ち抜きによるバリ等が裏面側になる）ので、案内面の平滑性が確保される。

【００１７】

受熱板８５は熱伝導性に優れた材料（例えば金属）で構成され、剥離部材８０の裏面側に一体的に固着されている。 10

受熱板８５は、剥離部材８０の先端８１ａ（図１参照）よりも加圧ローラ６２の回転方向下流側にあつて加圧ローラ６２の表面に対向している受熱部８５ａと、この受熱部８５ａに対して一体的に屈曲されかつ前記剥離部材８０に一体的に接合されて剥離部材８０に熱を伝える伝熱部８５ｂとを有している。

図２（ｂ）（ｄ）に示すように、受熱板８５には、その伝熱部８５ｂに、上記剥離部材８０の穴８２に対応させた位置にリブ８５ｃが設けられており、これら穴８２とリブ８５ｃ同士を合わせるようにして剥離部材８０の裏面側と受熱板８５の伝熱部８５ｂの表面側とを接合させて固着することによって、リブ８５ｃを剥離部材８０の穴８２から突出させてある。 20

剥離部材８０と受熱板８５との固着は、例えばスポット溶接で行う。

なお、受熱板８５は、剥離部材８０の支持部材としての役割も果たしており、受熱板８５の両端は定着装置６０の図示しないフレームに取り付けられている。

【００１８】

以上のような定着装置は、回転駆動される定着部材６１と、この定着部材６１に圧接されて回転する加圧部材６２と、これら定着部材６１、加圧部材６２に対して設けられ、定着部材６１と加圧部材６２との圧接部Ｎを通過してきたシート状の記録媒体を定着部材９１、加圧部材６２の表面から剥離しかつ案内する剥離部材７０、８０とを有し、剥離部材８０が前記圧接部Ｎの出口Ｎ１の上方（または圧接部の出口からの気流の下流側）に設けられている装置であつて、剥離部材８０に、加圧部材６２からの熱を受ける受熱板８５が設けられているので、この定着装置によれば次のような作用効果が得られる。 30

すなわち、剥離部材８０には加圧部材６２からの熱を受ける受熱板８５が設けられているので、この受熱板８５の作用（受熱板８５が加圧部材６２からの熱を受けてその熱を剥離部材８０に伝達する作用）によって、剥離部材８０は速やかに昇温することとなる。通常、定着装置が組み込まれている画像形成装置（図１参照）においては、定着装置６０への記録媒体の供給に先立ち、定着装置６０の定着部材６１および加圧部材６２を所定の温度（トナーを記録媒体に定着させるのに必要な温度）に昇温させるウォームアップ動作がなされるが、この定着装置６０によれば、剥離部材８０には加圧部材６２からの熱を受ける受熱板８５が設けられているので、この受熱板８５の作用によって、上記ウォームアップ動作中に、剥離部材８０を、これに結露が生じない程度に昇温させることが可能となる。 40

したがって、この定着装置６０によれば、剥離部材８０の表面が結露しにくくなり、結果として、記録媒体が濡れにくくなって、記録媒体に濡れジミや歪みが生じたり、両面印字時における著しい画像欠陥が生じにくくなる。

また、受熱板８５を、剥離部材８０の先端８１ａよりも加圧部材６２の回転方向下流側にあつて加圧部材６２と対向している受熱部８５ａと、剥離部材８０に一体的に接合されて剥離部材８０に熱を伝える伝熱部８５ｂとで構成してあるので、受熱板８５の上記受熱部８５ａによる受熱効率および上記伝熱部８５ｂによる剥離部材８０への伝熱効率が向上し、剥離部材８０が、より速やかに昇温することとなる。結果として、剥離部材８０の表面が一層結露しにくくなり、記録媒体が一層濡れにくくなって、記録媒体に濡れジミや歪みが生じたり、両面印字時における著しい画像欠陥が生じるという不具合が一層生じにくく 50

なる。

さらに、剥離部材 80 に穴 82 を設け、受熱板 85 の伝熱部 85b に、剥離部材 80 の穴 82 から突出しているリブ 85c を設けてあるので、剥離部材 80 への記録媒体の接触面積を低減させることができると同時に、記録媒体に接触しやすい部位であるリブ 85c の温度をより速やかに上昇させることが可能となる。したがって、仮に剥離部材 80 に多少の結露があったとしてもこれに記録媒体が接触しにくくなると同時に、記録媒体に接触しやすい部位であるリブ 85c には結露が生じにくくなる。結果として、記録媒体がより一層濡れにくくなって、記録媒体に濡れジミや歪みが生じたり、両面印字時における著しい画像欠陥が生じるという不具合がより一層生じにくくなる。

しかも、リブ 85c を剥離部材 80 に直接形成するのではなく、受熱板 85 に形成してある 10
ので、剥離部材 80 の先端 81a の精度を確保することができる。剥離部材 80 にリブを直接加工（例えばプレス加工）すると、その影響で、先端 81a の精度が低下し、剥離性能が低下するおそれがあるが、この実施の形態によれば剥離部材 80 には穴 82 を形成するだけでよいのでそのようなおそれは生じない。

【0019】

以上、本発明の実施の形態について説明したが、本発明は上記の実施の形態に限定されるものではなく、本発明の要旨の範囲内において適宜変形実施可能である。

例えば、定着部材 61 がベルトである場合にも、この発明は適用可能である。また、例えば、画像形成装置が片面印字用の装置である場合には、定着部材用剥離部材に受熱板を設ける。 20

【0020】

【図面の簡単な説明】

【図 1】本発明に係る定着装置の一実施の形態を用いた画像形成装置の一例の内部構造を示す概略側面図。

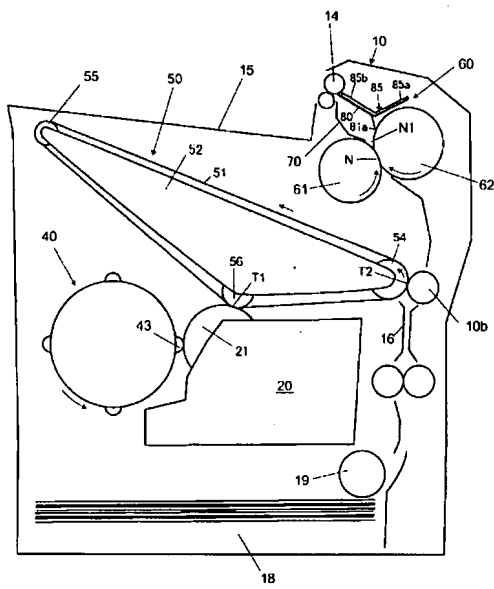
【図 2】主として加圧ローラ用剥離部材を示す図で、(a) は平面図、(b) は正面図、(c) は図 (b) における c-c 拡大断面図、(d) は図 (b) における d-d 拡大断面図。

【符号の説明】

60 定着装置、61 定着ローラ（定着部材）、62 加圧ローラ（加圧部材）、N 圧接部、N1 出口、80 加圧ローラ用剥離部材（剥離部材）、81a 先端、82 30
穴、85 受熱板、85a 受熱部、85b 伝熱部、85c リブ。

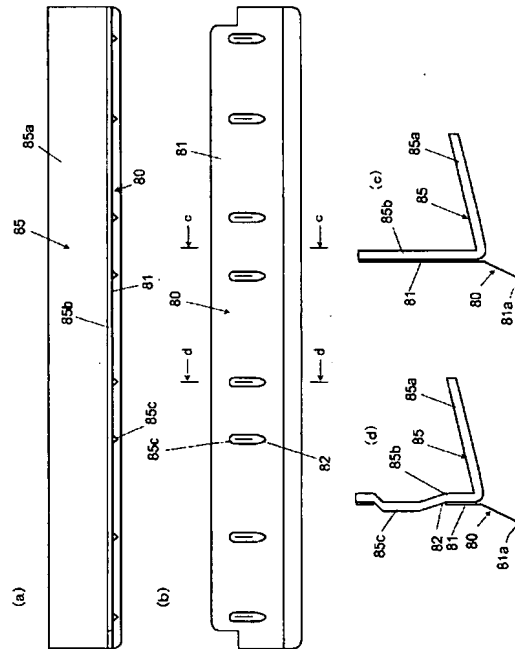
【図 1】

96003-01



【図 2】

96003-02



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CLAIMS

[Claim(s)]

[Claim 1]

The fixing member by which a rotation drive is carried out, and the pressurization member which a pressure welding is carried out to this fixing member, and is rotated, It is prepared to one [at least] member of these fixing member and the pressurization members. It is equipment with which it has the exfoliation member to which it exfoliates from the front face of one [said / at least] member, and shows the record medium of the shape of a sheet which has passed the pressure-welding section of a fixing member and a pressurization member, and this exfoliation member is prepared in the downstream of the air current from the upper part of the outlet of said pressure-welding section, or the outlet of the pressure-welding section,

The anchorage device characterized by forming the heat-receiving plate which receives the heat from one [said / at least] member in said exfoliation member.

[Claim 2]

Said heat-receiving plate is an anchorage device according to claim 1 which is in the hand-of-cut downstream of one [said / at least] member rather than the tip of said exfoliation member, and is characterized by having concerned one member, the heat-receiving section which has countered, and the heat transfer section which is joined to said exfoliation member in one, and tells heat to an exfoliation member.

[Claim 3]

The anchorage device according to claim 2 characterized by preparing the rib projected from the hole of said exfoliation member in the heat transfer section of said heat-receiving plate while the hole is established in said exfoliation member.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]

This invention relates to the anchorage device used for image formation equipments, such as a printer which forms an image using electrophotographic technology, facsimile, and a copying machine. Especially, it is related with the amelioration technique of the exfoliation member.

[0002]

[Description of the Prior Art]

Generally the image formation equipment using electrophotographic technology The photo conductor which has a sensitization layer in a peripheral face, and an electrification means to electrify the peripheral face of this photo conductor uniformly, An exposure means to expose alternatively the peripheral face uniformly electrified by this electrification means, and to form an electrostatic latent image, The development means which gives the toner which is a developer to the electrostatic latent image formed by this exposure means, and is used as a visible image (toner image), It has an imprint means to make sheet-like record media, such as a form which is a candidate for an imprint, imprint the toner image developed by this development means, and the anchorage device which fixes that toner image on the record medium by which the toner image was imprinted with this imprint means.

The anchorage device has the fixing member (for example, the fixing roller and fixing belt which have a heat source) by which a rotation drive is carried out, and the pressurization member (for example, pressurization roller) which a pressure welding is carried out to this fixing member, and is rotated, and melting fixing of the toner is carried out on a record medium by heating a record medium with through in the pressure-welding section of these fixing member and a pressurization member.

moreover, since the field of a record medium in which the toner image was formed tends to stick to a fixing member in the adhesion operation by the toner (the case where an image is formed in both sides of a record medium -- a pressurization member), it is equipped with the exfoliation member to which the record medium of the shape of a sheet which has passed said pressure-welding section to a fixing member at least of a fixing member and the pressurization members is made to exfoliate from the front face, and it shows it.

[0003]

The fixing roller 1 by which a rotation drive is carried out as a conventional anchorage device, and the pressurization roller 6 which a pressure welding is carried out to this fixing roller 1, and rotates, The exfoliation sheet 7 to which it exfoliates from the front face of a fixing roller 1, and shows the record medium P of the shape of a sheet which was established to the fixing roller 1 and has passed the pressure-welding section N of a fixing roller and the pressurization roller 6, What has the buttress plate 12 which is supporting this exfoliation sheet 7 is known (for example, patent reference 1 reference). In addition, the exfoliation sheet 7 consists of a base material 8 which consists of heat resistant resin or a metal, and a fluororesin layer 9 prepared in the front face, and the buttress plate 12 consists of metals (for example, patent reference 1 reference).

[0004]

[Patent reference 1]

JP,11-184300,A (the 0018th, 0022 to 0024 paragraph, drawing 1 -2)

[0005]

[Problem(s) to be Solved by the Invention]

In the above anchorage devices, since it conveys heating a record medium in the pressure-welding section of a fixing member and a pressurization member, when a record medium is a medium containing the moisture of paper etc., the moisture of a record medium is emitted as a steam from the outlet of said pressure-welding section.

This steam goes to the downstream of the air current by that ventilation means, when the ventilation means (or inhalation-of-air means) is established to the anchorage device toward the upper part.

For this reason, the exfoliation member is prepared in the downstream of the air current from the upper part of the outlet of said pressure-welding section, or the outlet of the pressure-welding section, and dew condensation arises on a front face [in / that this exfoliation member is low temperature / an exfoliation member] (slideway of a record medium) (for example, in the operation early stages of an anchorage device, an exfoliation member is low temperature and serves as an elevated temperature gradually in response to the heat from a fixing member etc. after that).

The moisture which dewed the front face of an exfoliation member wets a record medium, and produces distortion of the record medium twisted for getting wet in a record medium, making JIMI or getting wet.

furthermore, in performing double-sided printing which forms an image also in a rear face after forming an image on the surface of a record medium In case the rear-face side of a record medium gets wet when forming and fixing an image to a front face, and it is going to form an image in this wet rear-face side a record medium -- getting wet -- the electrical property of a record medium changes, melting of a toner may be barred with the wet moisture, sufficient fixing may not be able to be performed [a toner image may be unable to be imprinted, or], and a remarkable image defect may arise

[0006]

The purpose of this invention solves the above problems and is to offer the anchorage device with which a record medium cannot be easily damp.

[0007]

[Means for Solving the Problem]

In order to attain the above-mentioned purpose the anchorage device of the invention in this application The fixing member by which a rotation drive is carried out, and the pressurization member which a pressure welding is carried out to this fixing member, and is rotated, It is prepared to one [at least] member of these fixing member and the pressurization members. It is equipment with which it has the exfoliation member to which it exfoliates from the front face of one [said / at least] member, and shows the record medium of the shape of a sheet which has passed the pressure-welding section of a fixing member and a pressurization member, and this exfoliation member is prepared in the downstream of the air current from the upper part of the outlet of said pressure-welding section, or the outlet of the pressure-welding section,

It is characterized by forming the heat-receiving plate which receives the heat from one [said / at least] member in said exfoliation member.

Desirably, said heat-receiving plate is in the hand-of-cut downstream of one [said / at least] member rather than the tip of said exfoliation member, and consists of concerned one member, the heat-receiving section which has countered, and the heat transfer section which is joined to said exfoliation member in one, and tells heat to an exfoliation member.

Still more desirably, while establishing a hole in said exfoliation member, the rib projected from the hole of said exfoliation member is prepared in the heat transfer section of said heat-receiving plate.

[0008]

[Function and Effect]

The fixing member by which the rotation drive of the anchorage device of the invention in this

application is carried out, and the pressurization member which a pressure welding is carried out to this fixing member, and is rotated, It is prepared to one [at least] member of these fixing member and the pressurization members. It is equipment with which it has the exfoliation member to which it exfoliates from the front face of one [said / at least] member, and shows the record medium of the shape of a sheet which has passed the pressure-welding section of a fixing member and a pressurization member, and this exfoliation member is prepared in the downstream of the air current from the upper part of the outlet of said pressure-welding section, or the outlet of the pressure-welding section, Since the heat-receiving plate which receives the heat from one [said / at least] member in said exfoliation member is formed, according to this anchorage device, the following operation effectiveness is acquired.

That is, since the heat-receiving plate which receives the heat from one [said / at least] member is formed in the exfoliation member, the temperature up of the exfoliation member will be promptly carried out according to an operation (operation whose heat-receiving plate transmits that heat to an exfoliation member in response to the heat from one [said / at least] member) of this heat-receiving plate. Usually, although the warm-up actuation the temperature up of the fixing member and pressurization member of an anchorage device is carried out [actuation] to predetermined temperature (temperature required to fix a toner to a record medium) is made in advance of supply of the record medium to an anchorage device in the image formation equipment with which the anchorage device is incorporated Since the heat-receiving plate which receives the heat from one [said / at least] member is formed in the exfoliation member according to the anchorage device of this invention, it becomes possible to make extent which dew condensation does not produce at this carry out the temperature up of the exfoliation member during the above-mentioned warm-up actuation according to an operation of this heat-receiving plate.

Therefore, as a result, a record medium stops being able to get wet easily and it gets wet in a record medium, and the front face of an exfoliation member stops being able to dew easily, and it is hard coming according to the anchorage device of this invention, for JIMI and distortion to arise or to generate the remarkable image defect at the time of double-sided printing.

Moreover, the heat-receiving section which is in the hand-of-cut downstream of one [said / at least] member, and has countered said heat-receiving plate with concerned one member rather than the tip of said exfoliation member, By constituting from the heat transfer section which is joined to said exfoliation member in one, and tells heat to an exfoliation member, the heat-receiving effectiveness by the above-mentioned heat-receiving section of a heat-receiving plate and the efficiency of heat transfer to the exfoliation member by the above-mentioned heat transfer section will improve, and an exfoliation member will carry out a temperature up more promptly. As a result, the front face of an exfoliation member stops being able to dew much more easily, a record medium stops being able to get wet much more easily, and it gets wet in a record medium, and is much more hard coming to generate the fault that JIMI and distortion arise or the remarkable image defect at the time of double-sided printing arises.

Furthermore, while the touch area of the record medium to an exfoliation member can be reduced by establishing a hole in said exfoliation member and preparing the rib projected from the hole of said exfoliation member in the heat transfer section of said heat-receiving plate; it becomes possible to raise more promptly the temperature of the rib which is the part which is easy to contact a record medium. Therefore, even if an exfoliation member has some dew condensation, while a record medium stops being able to contact this easily, it is hard coming to generate dew condensation to the rib which is the part which is easy to contact a record medium. As a result, a record medium stops being able to get wet much more easily, and it gets wet in a record medium, and is much more hard coming to generate the fault that JIMI and distortion arise or the remarkable image defect at the time of double-sided printing arises.

And since a rib is not directly formed in an exfoliation member but it has formed in the heat-receiving plate, the precision of an exfoliation member is securable. When direct processing (for example, press working of sheet metal) of the rib is carried out to an exfoliation member, there is a possibility that the precision of an exfoliation member may fall and detachability ability may fall under that effect, but since

what is necessary is just to form a hole in an exfoliation member according to this invention, such fear is not produced.

[0009]

[Embodiment of the Invention]

Hereafter, the gestalt of operation of this invention is explained with reference to a drawing.

Drawing 1 is the outline side elevation showing the internal structure of an example of the image formation equipment using the gestalt of 1 operation of the anchorage device concerning this invention. This image formation equipment is color picture formation equipment which can form a full color image in both sides of the form (an example of a record medium) of A3 size, and is equipped with a case 10, the image support and the exposure unit 20 which were held in this case 10, the development counter 40 as a development means, the middle imprint object unit 50, and the fixing unit 60 that is an anchorage device.

The frame which the body of equipment does not illustrate is prepared in the case 10, and each unit etc. is attached in this frame.

[0010]

The photo conductor 21 with which image support and the exposure unit 20 have a sensitization layer in a peripheral face (image support), It has an electrification means which is not illustrated to electrify the peripheral face of this photo conductor 21 uniformly. Expose alternatively the peripheral face of the photo conductor 21 uniformly electrified by this electrification means with the laser light from an exposure unit, and an electrostatic latent image is formed. A development counter 40 gives the toner which is a developer to this electrostatic latent image, it considers as a visible image (toner image), and this toner image is primarily imprinted in the primary imprint section T1 to the middle imprint belt 51 of the middle imprint object unit 50. Further in the secondary imprint section T2 Record media, such as a form which is a candidate for an imprint, are made to imprint secondarily.

[0011]

in a case 10, the form conveyed by the conveyance way which turns to the form discharge section (paper output tray section) 15 of case 10 top face the record medium with which the image was formed in one side of the above-mentioned secondary imprint section T2, and conveys it, and this conveyance way towards the form discharge section 15 switchbacks -- making -- on the other hand -- being alike -- the return way which returns towards said secondary imprint section T2 that an image should form and which does not illustrate is prepared.

The medium tray 18 which carries out laminating maintenance of two or more sheets of forms, and the feed roller 19 which turns and feeds the above-mentioned secondary imprint section T2 with one sheet of the form at a time are formed in the lower part of a case 10.

[0012]

A development counter 40 is a rotary development counter, and it is possible by rotating in a pitch 90 degrees in the direction of an arrow head to make the developing roller 43 according to each color contact a photo conductor 21 alternatively, and to develop the front face of a photo conductor 21 alternatively.

[0013]

The middle imprint object unit 50 is equipped with said middle imprint belt 51 turned [they hung on them and] and laid by the driving roller 54 supported pivotable, the follower roller 55, the primary imprint roller 56, and these rollers with the unit frame 52 and this frame 52, and the circulation drive of the belt 51 is carried out in the direction of an illustration arrow head. Said primary imprint section T1 is formed between the photo conductor 21 and the primary imprint roller 56, and said secondary imprint section T2 is formed in the pressure-welding section of a driving roller 54 and secondary imprint roller 10b prepared in the body side.

Secondary imprint roller 10b can attach and detach to said driving roller 54 (following and receiving the middle imprint belt 51), and when it contacts, the secondary imprint section T2 is formed.

Therefore, in case a color picture is formed, the toner image of two or more colors piles up on the middle imprint belt 51 in the condition that secondary imprint roller 10b has estranged from the middle

imprint belt 51, and a color picture is formed. Then, secondary imprint roller 10b will contact the middle imprint belt 51, and a color picture (toner image) will be imprinted on a record medium by supplying a record medium to the contact section (secondary imprint section T2).

a toner image carries out melting fixing of the record medium with which the toner image was imprinted by passing along the fixing unit (anchorage device) 60 -- having -- a delivery roller pair -- it is conveyed by 14 and discharged towards the above-mentioned paper output tray section 15.

[0014]

The fixing roller 61 as a fixing member by which a rotation drive is carried out with the drive which does not illustrate the anchorage device 60 of the gestalt of this operation, The pressurization roller 62 as a pressurization member which a pressure welding is carried out to this fixing roller 61, and rotates, It is prepared to these fixing rollers 61 and the pressurization roller 62. It has the exfoliation member 70 for fixing rollers as an exfoliation member to which it exfoliates from the front face of a fixing roller 61 or the pressurization roller 62, and shows the record medium (not shown) of the shape of a sheet which has passed the pressure-welding section N of a fixing roller 61 and the pressurization roller 62, and the exfoliation member 80 for pressurization rollers.

With the gestalt of this operation, as mentioned above, in order to form a toner image in both sides of a record medium, the exfoliation member (80) is prepared also to the pressurization roller 62, but in forming a toner image only in one side of a record medium, it prepares an exfoliation member (exfoliation member of a configuration of mentioning later) only in the member of the side in which the heat source is prepared.

[0015]

The exfoliation member 80 for pressurization rollers is formed above the outlet N1 of the pressure-welding section N of a fixing roller 61 and the pressurization roller 62 so that clearly from drawing 1. For example, when the exfoliation member 80 is formed above the outlet N1 of said pressure-welding section N, supposing it does not lecture on any policy in this way, either, as mentioned above, dew condensation will arise in the front face (slideway of a record medium) 81 (refer to drawing 2) of the exfoliation member 80, and a problem as mentioned above will occur on it. In addition, as mentioned above, even if the exfoliation member 80 is not formed above the outlet N1 of the pressure-welding section N, such a problem is produced when prepared in the downstream of the air current from the outlet of the pressure-welding section N.

[0016]

So, with the gestalt of this operation, as shown in drawing 1 and drawing 2, the heat-receiving plate 85 which receives the heat from the pressurization roller 62 in the exfoliation member 80 is provided.

Drawing 2 is drawing mainly showing the exfoliation member 80 for pressurization rollers, and a c-c expanded sectional view [in / (a) / a top view and (b), and / in (c) / drawing (b)] and (d) are the d-d expanded sectional views in drawing (b). [a front view]

The exfoliation member 80 for pressurization rollers (exfoliation member) is constituted by bending and processing the metal plate of one sheet, and has coated the slideway 81 of a record medium with the fluororesin excellent in the detachability over a toner etc. As shown in drawing 2 (b) and (d), the hole 82 is established in the exfoliation member 80. This hole 82 is formed by turning, piercing and processing the above-mentioned metal plate into a rear-face side from the above-mentioned slideway side, and after it performs this punching processing, it has coated the above-mentioned fluororesin etc. it is pierced and processed towards a rear-face side from the above-mentioned slideway side -- rattlingly -- alike -- more - - a slideway side -- a press -- whom -- the smooth nature of a slideway is secured by that which becomes a side (the weld flash by punching etc. is on a rear-face side).

[0017]

The heat-receiving plate 85 consisted of ingredients (for example, metal) excellent in thermal conductivity, and has fixed in one to the rear-face side of the exfoliation member 80.

The heat-receiving plate 85 has heat-receiving section 85a which is in the hand-of-cut downstream of the pressurization roller 62, and has countered the front face of the pressurization roller 62 rather than tip 81a (refer to drawing 1) of the exfoliation member 80, and heat transfer section 85b which is crooked in

one, and is joined to said exfoliation member 80 in one to this heat-receiving section 85a, and tells heat to the exfoliation member 80.

As shown in drawing 2 (b) and (d), to the heat-receiving plate 85 Rib 85c is prepared in the location which made the hole 82 of the above-mentioned exfoliation member 80 correspond to the heat transfer section 85b. Rib 85c is made to have projected from the hole 82 of the exfoliation member 80 by joining the front-face side of heat transfer section 85b of the heat-receiving plate 85 the rear-face side of the exfoliation member 80, as rib 85c is doubled with these holes 82, and fixing.

Fixing with the exfoliation member 80 and the heat-receiving plate 85 is performed by spot welding. In addition, the heat-receiving plate 85 has also played a role of supporter material of the exfoliation member 80, and the both ends of the heat-receiving plate 85 are attached in the frame which an anchorage device 60 does not illustrate.

[0018]

The fixing member 61 by which the rotation drive of the above anchorage devices is carried out, and the pressurization member 62 which a pressure welding is carried out to this fixing member 61, and is rotated, It is prepared to these fixing member 61 and the pressurization member 62, and has the exfoliation members 70 and 80 to which it exfoliates from the front face of the fixing member 91 and the pressurization member 62, and shows the record medium of the shape of a sheet which has passed the pressure-welding section N of the fixing member 61 and the pressurization member 62. Since the heat-receiving plate 85 which the exfoliation member 80 is equipment formed above the outlet N1 of said pressure-welding section N (or downstream of the air current from the outlet of the pressure-welding section), and receives the heat from the pressurization member 62 in the exfoliation member 80 is formed, according to this anchorage device, the following operation effectiveness is acquired.

That is, since the heat-receiving plate 85 which receives the heat from the pressurization member 62 is formed in the exfoliation member 80, the temperature up of the exfoliation member 80 will be promptly carried out according to an operation (operation whose heat-receiving plate 85 transmits that heat to the exfoliation member 80 in response to the heat from the pressurization member 62) of this heat-receiving plate 85. Usually, it sets to the image formation equipment (refer to drawing 1) with which the anchorage device is incorporated. Although the warm-up actuation the temperature up of the fixing member 61 and the pressurization member 62 of an anchorage device 60 is carried out [actuation] to predetermined temperature (temperature required to fix a toner to a record medium) is made in advance of supply of the record medium to an anchorage device 60 Since the heat-receiving plate 85 which receives the heat from the pressurization member 62 is formed in the exfoliation member 80 according to this anchorage device 60, it becomes possible to make extent which dew condensation does not produce at this carry out the temperature up of the exfoliation member 80 during the above-mentioned warm-up actuation according to an operation of this heat-receiving plate 85.

Therefore, as a result, a record medium stops being able to get wet easily and it gets wet in a record medium, and the front face of the exfoliation member 80 stops being able to dew easily, and it is hard coming according to this anchorage device 60, for JIMI and distortion to arise or to generate the remarkable image defect at the time of double-sided printing.

Moreover, heat-receiving section 85a which is in the hand-of-cut downstream of the pressurization member 62, and has countered the heat-receiving plate 85 with the pressurization member 62 rather than tip 81a of the exfoliation member 80, Since it constitutes from heat transfer section 85b which is joined to the exfoliation member 80 in one, and tells heat to the exfoliation member 80 The heat-receiving effectiveness by the above-mentioned heat-receiving section 85a of the heat-receiving plate 85 and the efficiency of heat transfer to the exfoliation member 80 by the above-mentioned heat transfer section 85b will improve, and the exfoliation member 80 will carry out a temperature up more promptly. As a result, the front face of the exfoliation member 80 stops being able to dew much more easily, a record medium stops being able to get wet much more easily, and it gets wet in a record medium, and is much more hard coming to generate the fault that JIMI and distortion arise or the remarkable image defect at the time of double-sided printing arises.

Furthermore, since a hole 82 is established in the exfoliation member 80 and rib 85c projected from the

hole 82 of the exfoliation member 80 to heat transfer section 85b of the heat-receiving plate 85 is prepared, while the touch area of the record medium to the exfoliation member 80 can be reduced, it becomes possible to raise more promptly the temperature of rib 85c which is easy to contact a record medium and which is a part. Therefore, even if the exfoliation member 80 has some dew condensation, while a record medium stops being able to contact this easily, it is hard coming to generate dew condensation in rib 85c which is easy to contact a record medium and which is a part. As a result, a record medium stops being able to get wet much more easily, and it gets wet in a record medium, and is much more hard coming to generate the fault that JIMI and distortion arise or the remarkable image defect at the time of double-sided printing arises.

And since rib 85c is not directly formed in the exfoliation member 80 but it has formed in the heat-receiving plate 85, the precision of tip 81a of the exfoliation member 80 is securable. When direct processing (for example, press working of sheet metal) of the rib is carried out to the exfoliation member 80, there is a possibility that the precision of tip 81a may fall and detachability ability may fall under that effect, but since what is necessary is just to form a hole 82 in the exfoliation member 80 according to the gestalt of this operation, such fear is not produced.

[0019]

As mentioned above, although the gestalt of operation of this invention was explained, this invention is not limited to the gestalt of the above-mentioned operation, and deformation implementation is possible for it suitably within the limits of the summary of this invention.

For example, this invention can be applied also when the fixing member 61 is a belt. Moreover, for example, when image formation equipment is equipment for one side printing, a heat-receiving plate is formed in the exfoliation member for fixing members.

[0020]

[Brief Description of the Drawings]

[Drawing 1] The outline side elevation showing the internal structure of an example of the image formation equipment using the gestalt of 1 operation of the anchorage device concerning this invention.

[Drawing 2] For (a), in drawing mainly showing the exfoliation member for pressurization rollers, (d) is a c-c expanded sectional view [in / a top view and (b), and / in (c) / drawing (b)], and a d-d expanded sectional view in drawing (b). [a front view]

[Description of Notations]

60 An anchorage device, 61 A fixing roller (fixing member), 62 Pressurization roller (pressurization member), N The pressure-welding section, N1 An outlet, 80 Exfoliation member for pressurization rollers (exfoliation member), 81a A tip, 82 A hole, 85 A heat-receiving plate, 85a The heat-receiving section, 85b The heat transfer section, 85c Rib.

[Translation done.]